Marked up copy of specification changes in accordance with 37CFR§1.121(c)(ii)

Page 2, line 25

It is an object of the present invention to provide a method for implementing a hardware zoom in which a user specifies a point and a dimension of a window or frame associated with the point within a main display, and the hardware zoom automatically scales a maximum portion of the window selected to a full screen view. The full screen zoom may be provided on a different display than the main display, with the main display remaining unchanged by the selection. This allows the user to simply define any area on the display using an input device with the result that the window automatically gets scaled full screen. This offers the flexibility of not limiting the user to determine a scale factor, but to instead define the area that they are interested in working on and having it zoomed full ~~screed~~ screen to the desired display and resolution. Once the frame has been defined, the frame can be moved relative to the movement of an input device if a panning feature is enabled.

page 3, line 15

~~According to the invention, there is provided a method of providing a display surface zoom in a display controller system having a main surface memory and at least one zoom display device. The method comprises the steps of:~~

~~receiving user input defining either a fixed position frame portion within the main surface memory or a non-integer fraction of the main surface memory;~~

~~determining a resolution of the zoom display device and optionally adjusting the aspect ratio of the portion defined by the user input to correspond to its resolution;~~

~~scaling the user selected portion of the main surface memory;~~

~~converting the scaled portion of the main surface memory into a display signal; and~~

~~outputting the display signal to the zoom display device.~~

A method of controlling a display controller system to provide a display surface zoom, said display controller system having a main surface memory and at least one zoom display device, the method comprising the steps of:

receiving user input defining coordinates of a fixed position frame portion within said main surface memory;

determining a resolution of said at least one zoom display device and adjusting an aspect ratio of said portion defined by said user input to correspond to said resolution;

programming said display controller system to implement said display surface zoom;

scaling said portion of said main surface memory in said display controller system;

converting said scaled portion of said main surface memory into a display signal in said display controller system; and

outputting said display signal from said display controller system to said at least one zoom display device.

page 11, line 12

Alternatively to using the 3D drawing engine 60, the backend scaler 14 of CRTC2 12 can also be used to scale the zoomed window (see Figure 8). The CRTC2 12 is set to read from the location where the zoom window is located and the scaler is programmed to scale using the determined scale factor. The zoom window can be fetched directly from the main display buffer or the zoom window can be copied (blit) into another region in memory and the CRTC2 (12) can read from there (see Figure ~~9~~8). In this case the control of filtering and non-filtering, will depend on the filtering capabilities of the specific scaling unit used.

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1. A method of controlling a display controller system to ~~providing~~provide a display surface zoom, ~~in a~~said display controller system having a main surface memory and at least one zoom display device, the method comprising the steps of:

receiving user input defining coordinates of a fixed position frame portion within said main surface memory;

determining a resolution of said at least one zoom display device and adjusting an aspect ratio of said portion defined by said user input to correspond to said resolution;

programming said display controller system to implement said display surface zoom;

scaling said portion of said main surface memory in said display controller system;

converting said scaled portion of said main surface memory into a display signal in said display controller system; and

outputting said display signal from said display controller system to said at least one zoom display device.

2. (unamended) The method as claimed in claim 1, wherein said step of converting includes incorporating a representation of a cursor in said display signal, said cursor having a position defined by a cursor position memory used for said main surface memory.

3. (unamended) The method as claimed in claim 1, further comprising a step of filtering said portion to provide for an image not illustrating coarse pixels.

4. (unamended) The method as claimed in claim 3, wherein said user input further defines a user's choice of filtering or non-filtering.

5. (unamended) The method as claimed in claim 1, wherein said user input further includes a cursor control device input used to control a cursor, and said portion is caused to be dragged or moved over said main surface memory by movement of said cursor.

6. (unamended) The method as claimed in claim 1, wherein said scaling comprises using a drawing engine associated with said display controller system to scale said portion into a buffer.

7. (unamended) The method as claimed in claim 1, wherein said scaling comprises using a backend scaler associated with said display controller system to scale said portion.

8. (unamended) The method as claimed in claim 7, wherein said scaling further comprises using a backend scaler associated with said display controller system to scale a hardware cursor associated with said portion.

9. (unamended) The method as claimed in claim 6, wherein said scaling further comprises using a drawing engine associated with said display controller system to scale a hardware cursor associated with said portion into a separate hardware cursor buffer.

10. (unamended) The method as claimed in claim 6, wherein said scaling further comprises using a drawing engine associated with said display controller system to scale a hardware cursor associated with said portion and overlay it onto said buffer.

11. (unamended) The method as claimed in claim 6, wherein said image data is stored alternatingly in one of a plurality of buffers, said step of converting comprising

reading said image data alternatingly from one of said buffers so as to reduce image flicker and ensure complete buffer update before displaying.

12. (unamended) The method as claimed in claim 1, wherein said display controller system comprises a single display, and said user input causes said single display to switch between displaying said portion and displaying essentially all of said main surface memory, whereby said zoom is provided independently of an application program.

13. (unamended) The method as claimed in claim 1, wherein said display controller system comprises at least two displays, a first one of which displaying essentially all of said main surface memory, and a second one of which displaying said scaled portion.

14. (unamended) The method as claimed in claim 13, wherein said second display has a different image resolution than an image resolution of said first display, said converting comprising automatically adjusting an image resolution of said signal representing said portion to match said image resolution of said second display.

15. (unamended) The method as claimed in claim 1, wherein said step of receiving user input comprises:

receiving input defining at least two portions of said main display surface to be selectively displayed on one of said at least one zoom display device; and

receiving input selecting one of said at least two portions of said main display surface to be displayed on said one of said at least one zoom display device.

16. (unamended) The method as claimed in claim 15, wherein said user input causes a toggling between said portions

17. (unamended) The method as claimed in claim 1, wherein said step of receiving user input further comprises:

associating said input defining said at least one said portion with one of a plurality of application programs,

wherein said step of receiving input selecting one of said at least two fractional portions comprises determining which one of a plurality of application programs is currently active and providing output to said main surface memory in order to select from at least one of said portions of said main display surface associated with the application program currently outputting to said main display surface.

18. (unamended) The method as claimed in claim 17, wherein a change in application program currently active and outputting to said main display surface is detected and caused to automatically change selection of said at least one of said at least two fractional portions.

19. (unamended) The method as claimed in claim 1, wherein said step of receiving user input comprises:

receiving input defining a plurality of portions of said main display surface to be selectively displayed on different zoom display devices; and

receiving input selecting one of said portions of said main display surface to be displayed on each one of said zoom display devices.

20. (unamended) The method as claimed in claim 19, wherein said user input causes a toggling between said portions.

21. (amended) A method of controlling a display controller system to ~~providing~~provide a display surface zoom, ~~in a~~said display controller system having a main surface memory and at least one zoom display device, the method comprising the steps of:

receiving user input defining coordinates of a fractional portion of said main surface memory to be scaled and displayed, said fractional portion being a non-integer fraction of said main surface memory;

determining a resolution of said at least one zoom display device and adjusting an aspect ratio of said portion defined by said user input to correspond to said resolution;

programming said display controller system to implement said display surface zoom;

scaling said portion of said main surface memory;

converting said scaled portion of said main surface memory into a display signal; and

outputting said display signal to said at least one zoom display device.

22. (unamended) The method as claimed in claim 21, wherein said step of converting includes incorporating a representation of a cursor in said display signal, said cursor having a position defined by a cursor position memory used for said main surface memory.

23. (unamended) The method as claimed in claim 21, further comprising filtering said portion to provide for an image not illustrating coarse pixels.

24. (unamended) The method as claimed in claim 23, wherein said user input further defines a user's choice of filtering or non-filtering.

25. (unamended) The method as claimed in claim 21, wherein said user input further includes a pointing device output used to control a cursor, and said portion is caused to be dragged or moved over said main surface memory by movement of said cursor.

26. (unamended) The method as claimed in claim 21, wherein said scaling comprises using a drawing engine associated with said display controller system to generate image data corresponding to said portion.

27. (unamended) The method as claimed in claim 21, further comprising a step of accepting user input adjusting said non-integer fraction to be increased and to be decreased, wherein said user input can cause a zoom magnification to vary upwards and downwards.